

## OCEAN GALES AND STORMS, JANUARY, 1932—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN—Continued													
Gonzenheim, Ger. S. S.	Enden	Portland, Me.	50 07 N	31 10 W	Jan. 25	9 p., 27	do	29.83	SSE	S, 11	WNW	S, 11	S-NW.
Winnebago, Br. S. S.	Manchester	New York	45 56 N	54 45 W	Jan. 28	8 p., 28	Jan. 30	29.32	SE	SW, 5	NW	WNW, 10	SW-WNW.
Emanuel Nobel, Belg. S. S.	Antwerp	Port Arthur	36 04 N	39 15 W	Jan. 27	Noon, 29	Jan. 31	29.81	SSW	SW, 10	NW	—, 10	SW-W-N.
Dakotan, Am. S. S.	Los Angeles	New York	33 35 N	74 21 W	Jan. 30	Noon, 30	Jan. 30		SW	SW, 7	NW	NW, 10	SW-NW.
Savoia, Ital. S. S.	Genoa	Philadelphia	35 00 N	41 00 W	do	4 a., 30	Jan. 31	29.79	WNW	NNW, 9	NW	WNW, 11	
Beemsterdijk, Du. S. S.	Rotterdam	Boston	42 54 N	59 55 W	Jan. 29	2 a., 31	Feb. 1	29.32	WNW	SW, 5	WNW	N, 9	W-WNW.
Lafcom, Am. S. S.	Seville	Pensacola	28 20 N	32 00 W	Jan. 31	4 p., 31	Feb. 2	29.81	WNW	WNW, 6	NNW	WNW, 8	Steady.
City of Havre, Am. S.S.	Hamburg	Baltimore	37 00 N	65 06 W	do	8 a., 31	Feb. 3	29.43	W	NW, 10	NNW	—, 12	
NORTH PACIFIC OCEAN													
Hakonesan Maru, Jap. M. S.	Yokohama	San Francisco	42 49 N	161 50 W	Jan. 1	3 p., 1	Jan. 4	29.23	S	SSE, 8	S	SSE, 9	S-SSE.
Kiyo Maru, Jap. S. S.	do	Los Angeles	37 53 N	155 24 E	Jan. 2	2 p., 3	do	29.28	SE	WSW, 9	WNW	W, 11	SE-SW.
Everett, Am. S. S.	Dairen	Seattle	49 47 N	151 27 W	Jan. 4	8 a., 4	do	29.32	NE	NNE, 9	NNW	NNE, 9	NE-NNE.
Golden Sun, Am. S. S.	San Francisco	Yokohama	30 10 N	172 15 W	Jan. 5	2 a., 5	Jan. 5	29.50	WSW	WSW, 7	SW	SW, 9	
Pres. Jefferson, Am. S. S.	Victoria	do	42 00 N	156 00 E	do	10 a., 5	Jan. 6	29.44	NE	WNW, 7	NNW	NW, 10	
Northwestern, Am. S. S.	Seattle	Seward	60 06 N	149 27 W	do	11 a., 5	do	29.40	NW	NW, 9	NW	NW, 10	Steady.
Silverhazel, Br. M. S.	Cebu	San Francisco	33 00 N	174 15 E	do	5 a., 7	Jan. 7	29.55	NW	WNW, 9	NNW	WNW, 9	NW-WNW.
Pres. Cleveland, Am. S. S.	Yokohama	Seattle	45 34 N	179 13 E	Jan. 6	2 a., 7	Jan. 8	29.28	ENE	N, 9	N	N, 9	ENE-N.
Knoxville City, Am. S. S.	Kahului	Balboa	21 13 N	148 00 W	Jan. 8	4 a., 8	do	30.10	E	E, 7	ENE	E, 8	E-ENE.
Menestheus, Br. M. S.	Balboa	San Pedro	13 08 N	94 00 W	Jan. 9	4 p., 9	Jan. 10	29.85	NW	N, 7	N	N, 8	NW-N.
San Pedro Maru, Jap. M. S.	Port Costa	Osaka	31 40 N	175 00 E	do	do	do		N	N	NE	N, 10	N-NNE-NE.
Hakutatsu Maru, Jap. M. S.	Milke	San Pedro	45 18 N	169 30 E	do	8 a., 11	Jan. 12	29.70	S	S, 10	W	S, 10	S-W.
Golden River, Am. S. S.	Portland	Osaka	37 39 N	173 55 W	Jan. 10	3 a., 10	Jan. 10	29.61	WNW	N, 6	N	N, 10	Steady.
Golden Sun, Am. S. S.	San Francisco	Yokohama	30 56 N	178 16 E	do	4 a., 10	Jan. 11	30.00	N	N, 7	NE	NE, 10	
Silverash, Br. M. S.	Ternate	San Pedro	36 12 N	162 28 W	do	4 a., 11	do	30.23	ENE	E, 9	ESE	E, 9	ENE-E.
Silverhazel, Br. M. S.	Cebu	San Francisco	38 54 N	161 15 E	do	9 a., 10	Jan. 12	30.17	NE	NE, 8	ESE	E, 10	NE-ENE-E.
Pres. Cleveland, Am. S. S.	Yokohama	Seattle	49 00 N	123 44 W	do	8 p., 12	Jan. 13	29.62	WNW	N, 7	ESE	N, 10	NW-N-ESE.
Adm. Farragut, Am. S. S.	San Francisco	San Diego	34 26 N	120 28 W	Jan. 12	— 13	do	29.72	W	WNW, 7	NW	W, 8	W-WNW.
Diana Dollar, Am. S. S.	Philippines	San Francisco	40 12 N	151 32 E	do	8 a., 13	do	30.03	SW	NW, 3	NW	SW, 9	SW-NW.
Fernmoor, Nor. M. S.	San Pedro	Yokohama	30 50 N	178 55 W	do	4 p., 12	Jan. 14	29.79	NE	NE, 9	N	NNE, 10	NE-N.
Michigan, Am. S. S.	Portland	do	49 19 N	173 20 E	Jan. 13	4 a., 14	do	29.18	SSW	WSW, 5	SW	—, 11	SW-WSW.
Adm. Farragut, Am. S. S.	San Francisco	Portland	37 55 N	122 49 W	Jan. 14	7 p., 14	do	29.64	SSW	S, 10	ESE	S, 10	SSW-S-SE.
Adm. Peoples, Am. S. S.	Portland	San Diego	41 10 N	124 34 W	do	2 p., 14	Jan. 15	29.44	SSE	SSE, 9	SE	SSE, 9	SE-SSE.
Golden River, Am. S. S.	do	Osaka	35 06 N	158 00 E	Jan. 17	4 p., 17	Jan. 17	29.81	SSW	WSW, 6	N	—, 9	S-SW-W.
Diana Dollar, Am. S. S.	Philippines	San Francisco	46 05 N	175 10 E	do	8 p., 17	Jan. 18	29.61	SE	SSW, 9	W	SSW, 9	SSE-S.
Tanaka, Br. S. S.	Shanghai	do	41 33 N	175 58 W	Jan. 19	0 a., 20	Jan. 20	29.29	SSE	SSE, —	WNW	SSW, 12	SSW-WNW.
Golden Dragon, Am. S. S.	Tsingtao	do	38 10 N	164 00 E	do	6 a., 20	do	29.61	SSE	WSW, 7	NNW	W, 11	SSE-S-W.
Diana Dollar, Am. S. S.	do	Los Angeles	46 31 N	160 28 W	Jan. 20	4 a., 21	Jan. 21	29.73	S	SSE, 9	W	SSW, 10	Steady.
do	do	do	44 52 N	149 56 W	Jan. 23	6 a., 23	Jan. 23	29.70	NNE	NNW, 9	WNW	WNW, 10	
Victoria, Am. S. S.	Seward	Seattle	58 31 N	138 08 W	Jan. 22	4 a., 22	Jan. 22	29.54	SE	SE 10	SE	SE, 10	
Tacoma, Am. S. S.	Manila	San Francisco	45 30 N	173 15 E	Jan. 25	Noon, 27	Jan. 28	29.23	N	NW, 10	W	NW, 10	NW-WNW.
Ohlone, Am. S. S.	New York	Los Angeles	15 50 N	95 40 W	Jan. 27	4 p., 27	Jan. 27	29.85	N	NE, 6	NE	NW, 8	NW-NE.
Malayan Prince, Br. M. S.	Los Angeles	Yokohama	30 00 N	167 28 E	do	1 p., 28	Jan. 29	29.55	WSW	WSW, 9	N	W, 10	WSW-W.
Silvermaple, Br. M. S.	Manila	Portland	35 30 N	141 30 E	do	10 p., 27	do	29.78	N	N, 8	NNW	NW, 9	N-NW-NNW.
Soyo Maru, Jap. M. S.	Yokohama	San Francisco	45 02 N	176 55 E	Jan. 28	2 p., 29	do	29.10	SE	SSE, 9	S	SSE, 9	SSE-SW-S.
Northwestern, Am. S. S.	Seward	Seattle	59 04 N	135 10 W	Jan. 30	4 a., 30	Jan. 30	30.54	N	N, 7	N	NW, 10	
Hakubasan Maru, Jap. M. S.	Yokohama	San Francisco	37 40 N	156 35 E	Jan. 31	4 p., 31	Feb. 1	29.17	NNW	NW, 9	WNW	NNW, 10	
SOUTH PACIFIC OCEAN													
Makura, Br. S. S.	Sydney	Wellington	31 27 S	170 15 W	Jan. 27	10 a., 28	Jan. 29	28.95	SE	NNE, 11	W	NE, 11	
SOUTH ATLANTIC OCEAN													
Solafrie, Br. M. S.	Durban	Rio De La Plata.	31 40 S	39 10 W	Jan. 5	4 p., 5	Jan. 6	29.76	SW	SW, 8	SSE	SW, 9	W-SW-S
MEDITERRANEAN SEA													
Kattegat, Ger. M. S.	Ertvelde	Batum	40 30 N	27 05 E	Jan. 1	2 p., 1	Jan. 1	29.55	SSE	SSE, 11	SSE	SSE, 11	Steady.

## NORTH PACIFIC OCEAN

By WILLIS E. HURD

**Atmospheric pressure.**—The distribution of atmospheric pressure over the North Pacific Ocean for January, 1932, showed on the average a moderate depression—the Aleutian Low—north of the fiftieth parallel; the crest of an anticyclone extending from the coast of the United States to near midocean; and another and more intense anticyclone extending eastward from the China coast beyond Honshu and the Ogasawara Islands.

As compared with the pressures of the preceding December, the Aleutian Low had filled in by fully 0.20 inch,

and the pressures on the American and Asiatic coasts had risen. At Honolulu barometric conditions were unchanged, but at Midway Island the December HIGH (30.18 inches) had disappeared, and in its stead much lower average pressure (29.94 inches) prevailed.

Pressures were above normal for January at all points along the American coast north of the thirtieth parallel, except southeastern Alaska, with Juneau reading 0.07 inch below normal.

Special attention is called to the addition of several island and coast stations from Asiatic sources to Table 1.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean and adjacent waters, January, 1932, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	<i>Inches</i>	<i>Inch</i>	<i>Inches</i>		<i>Inches</i>	
Point Barrow <sup>1</sup>	30.17	+0.09	30.80	5	29.20	12
Dutch Harbor <sup>1</sup>	29.78	+0.20	30.34	10	28.82	21
St. Paul <sup>1</sup>	29.73	+0.10	30.18	9	29.14	28
Kodiak <sup>1</sup>	29.75	+0.16	30.52	30	28.98	9
Juneau <sup>2</sup>	29.81	-0.07	30.69	30	29.03	5
Tatoosh Island <sup>2</sup>	30.04	+0.06	30.67	22	29.34	12
San Francisco <sup>2</sup>	30.16	+0.05	30.49	17	29.58	31
Mazatlan <sup>1</sup>	29.97	-0.05	30.04	8	29.90	1
Honolulu <sup>2</sup>	30.01	+0.01	30.15	25	29.80	31
Midway Island <sup>1</sup>	29.94	-0.09	30.36	23	29.40	14
Guam <sup>1</sup>	29.84	-0.06	29.96	20	29.68	4
Manila <sup>1</sup>	29.95	-0.03	30.06	10	29.86	4
Naha <sup>1</sup>	30.23	+0.15	30.40	11	30.02	31
Chichishima <sup>1</sup>	30.12	+0.11	30.44	21	29.90	1
Nemuro <sup>1</sup>	29.99	-----	30.48	20	29.62	3

<sup>1</sup> Data based on 1 daily observation only, with departures computed from best available normals related to time of observation.

<sup>2</sup> A. m. and p. m. observations.

<sup>3</sup> For 24 to 29 days, with missing dates distributed over the month.

<sup>4</sup> And on other dates.

<sup>5</sup> Corrected to 24-hour mean.

**Cyclones and gales.**—General cyclonic activity slackened on the North Pacific during January, 1932, as compared with that of the preceding month. The result was a lessened number of stormy days, and of days with gales of the higher wind velocities (11 to 12). Among the many storm reports contributed by seamen, a considerable percentage of the whole showed gales that did not exceed force 8. The month as a whole must be considered fairly stormy, however, and it may be noted that gales were almost as frequent on the central and southern trans-Pacific routes as they were along the northern, which is a rather unusual condition.

The dates of greatest storm intensity, as indicated by reports of maximum-force gales, were those of the 2d–3d, the 13th, and the 20th and 21st. On the 2d–3d a cyclone that had moved eastward from northern Japan intensified until central pressures were about 29 inches, and caused westerly gales of force 11 near 38° N., 155° E. On the 13th, in connection with an energetic cyclone that moved into the Aleutian region from the Okhotsk Sea, a gale of force 11 was experienced south of the western Aleutians. On the 20th and 21st cyclonic conditions, spreading eastward, covered a great area in northern mid-ocean, during the prevalence of which southeasterly gales of force 11–12 were reported near 40° N., 175° W., and 46° N., 160° W., and gales of lesser force over practically the entire extent of the low.

Gales of force 9 and 10 were fairly frequent during several intensifications of the Aleutian cyclone. The table of gales, however, sufficiently indicates their distribution.

About January 10th a low with a tropical characteristics formed south of Midway Island and spreading rapidly northward, caused fresh north and northeast gales over a considerable stretch of the sea. It early established contact through a long trough with the low over the eastern Aleutians, but it continued active in the neighborhood of Midway Island until the 14th, on which day the Midway pressure dropped as low as 29.40 inches. The low thereafter receded rapidly northward.

Owing to the strength of the Asiatic high, the northeast monsoon attained the strength of a moderate gale on several days, particularly from the 8th to 11th, between Luzon and the Nansei Islands.

East of the Hawaiian Islands, locally intensified trades which reached the force of a fresh gale, occurred on the 8th and from the 20th to 24th.

Off the California coast fresh to strong gales occurred on the 11th to 14th and on the 19th, during southward incursions of the Aleutian low, or westward expansions to the coast of extensive lows over the United States.

In the Gulf of Tehuantepec northerly of fresh gale force were encountered on the 9th and 27th, and of moderate gale force on the 20th and 21st.

**Conditions at Honolulu.**—The prevailing wind at Honolulu was from the east, with a maximum velocity of 28 miles from the same direction on the 11th. This January was the warmest there since 1889.

**Fog.**—From the 3d until the 10th fog formed over a considerably region between 160° west longitude and the American coast, 30° and 50° north latitude, and on a few scattered days thereafter.

**Haze.**—"Very heavy haze due to volcanic dust from Acateango and Fuego that settle on the ship and surrounding waters," was reported by the American steamship *Knoxville City*, while in the Gulf of Tehuantepec on the 21st. Similar observances were made by other vessels crossing the gulf on the 22d and 23d.

#### SEA-SURFACE TEMPERATURE OBSERVATIONS, JANUARY, 1932

By GILES SLOCUM

A change in the general plan of presenting sea-surface temperature data is initiated in this issue of the REVIEW. During the calendar year 1931 the REVIEW carried data for 1930, the material appearing in the issues dated a year after the months in which the observations were made. Hereafter the data will be for the current month and year.

The method of publishing a year late had the advantage of presenting complete or final figures. The new plan requires the omission of the relatively few reports which do not reach the files in time to be included. Final means, embodying all available material will, however, be computed and published after the close of each year in connection with a brief annual summary.

The disadvantage involved in publishing preliminary values subject to later slight revisions is not vital. Preliminary values will be found to vary ordinarily by not more than three-tenths of a degree from the final figures. Continuing discrepancies of this order would doubtless be significant in the areas from which these values are gathered, since the monthly and annual ranges are small, but such differences as will appear between the preliminary and final figures will be in the nature of accidentals and will therefore be of minor importance for purposes other than refined correlation computations, for which the corrected annual summaries should be used.

An exception in the proposed method of publication is made in the case of the 1931 data, which have not yet been presented in any form. To fill the gap between 1930 and 1932, resulting from this change of plan, the data for 1931 are presented in the present issue, summarized for the whole year. The values for December, 1931, necessarily remain provisional but they will be revised as soon as practicable.

A disadvantage of the plan of publishing a year late (followed in 1931) was that the data were then too old to be of interest in connection with current weather. It is primarily to eliminate this disadvantage that the present plan, which will place the figures in the hands of the public within 90 days after the close of each month, is inaugurated.